



ENERGY ANGLES

TENNESSEE ENERGY EDUCATION NETWORK
ENERGY DIVISION--DEPARTMENT OF ECONOMIC AND COMMUNITY DEVELOPMENT



November - December, 2006

Clean Energy Technology Education Sites Named

Five Tennessee schools have been selected to participate in a new project sponsored by the Energy Division in cooperation with the Tennessee Valley Authority. The project will establish Clean Energy Technology Education (CETE) sites at the five schools which will receive renewable energy systems from TVA. The goal of the project is to help educate the faculty, staff, students and members of the community about clean energy resources and energy efficiency and conservation.

An energy team from each school will participate in the National Energy Education Development program which will include educational activities for the school and community. Each of the participating schools has a lead teacher who will coordinate the program and supervise the student team. The teachers recently attended an orientation meeting which included a visit to the Buffalo Mountain Wind Power



Plant pictured above. From left to right: Ronnie Trout from the Morgan County Career and Technical Center in Wartburg; J. C. Potter from the Alvin C. York Institute in Jamestown; John Cannon from Scott High School in Oneida; Monte Copeland from Campbell County High School in LaFollette; David Schklar from Centennial High School in Franklin.



Free Materials from Mineral Information Institute

The Mineral Information Institute provides free materials to teachers to help their students learn about the importance of our mineral and energy resources. Materials include lessons with teacher guides and reproducible student pages, posters, and lots more. To find out more about this great resource, visit the MII website at www.mii.org

Check out TEEN's
website at:
[http://www.state.tn.us/ecd/
energy_teen.htm](http://www.state.tn.us/ecd/energy_teen.htm)



Come on Tennessee, Change a Light!

Compact fluorescent lights (CFLs) save energy and help reduce harmful emissions produced by power production. Replacing an incandescent bulb with a CFL will save a homeowner over \$40 per bulb. They will also save time buying and replacing bulbs. CFLs use 1/3 the energy of an incandescent bulb, lasts 10 times longer, and produce 70% less heat.

The Energy Star program is sponsoring a Change-a-Light campaign to encourage Americans to sign a pledge to change one or more incandescent bulb to CFLs. An online tracking system is in place and can be viewed at the following website:

<http://www.energystar.gov/index.cfm?fuseaction=cal.showPledge>

On this site, you can make the pledge and find out how Tennessee is doing compared to other states, how many bulbs have been replaced in each state, energy costs savings, and number of pounds of reduced emissions.

Please share this information with your students and encourage them to get their families to make the pledge and change a light.

Note: When making a pledge, you can select the Tennessee Department of Economic and Community Development - Energy Division as the referring organization!



APPLICATION DEADLINE JANUARY 2, 2007

THREE STAR COMMUNITIES ENERGY EDUCATION GRANT PROGRAM

The Energy Division coordinating with the Three-Star Program is offering a grant program for schools in Three Star Communities throughout the state. The grant will provide \$500 to support energy education activities conducted by a school. A list of 10 pre-selected activities with points awarded upon completion will be provided in the application package. A maximum of 10 points is required to be eligible for participating in the Three-Star Energy Star Program. The Three-Star Energy Star Program provides a \$1500 grant to purchase Energy Star labeled products for the school.

Applications and funds have been distributed through the designated local Three-Star contact person in each community. Each Three Star certified community will be eligible for one grant. Both of these grants are reimbursable and payment requests are due by June 30, 2007. This is a great way to fund some of your energy education activities and purchase energy efficient products for your school.

For eligibility or contact information, call the Energy Hotline at 1-800-342-1340.





Holiday Puzzles



INNER MEANINGS

USE ONLY THE LETTER IN "MERRY CHRISTMAS"
TO FIND A WORD FOR EACH DEFINITION:

TWELVE MONTHS _____
ALIKE _____
LARGE TOWN _____
WARMTH _____
GROWS ON YOUR HEAD _____
PART OF A FLOWER _____
MONEY _____
DIVIDE WITH SOMEONE _____
WATER VAPOR _____
MALE SHEEP _____
A SEAT _____
OUR PLANET _____
BASHFUL _____
HOLDS UP A SAIL _____
LONG-TAILED RODENT _____



PROFESSIONAL HOLIDAY GIFTS
FOR A DICTIONARY DRILL, HAVE
YOUR STUDENTS DETERMINE THE
RIGHT GIFT FOR EACH PROFESSIONAL:

1. PODIATRIST
 2. PHILATELIST
 3. ORNITHOLOGIST
 4. LEXICOGRAPHER
 5. METEOROLOGIST
 6. ICHTHYOLOGIST
 7. HORTICULTURALIST
 8. GEOLOGIST
 9. ASTRONOMER
 10. OPTOMETRIST
- A. BIRD CALL RECORDING
B. FISHING NET
C. WEATHER BALLOON
D. PLANT FOOD
E. EYEGLASSES
F. TOENAIL CLIPPERS
G. UNUSUAL ROCK
H. A RARE STAMP
I. DICTIONARY
J. TELESCOPE

NEED KITS AVAILABLE



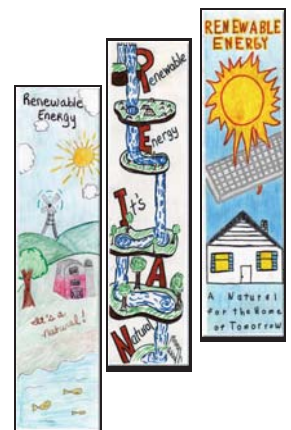
The 2006-07 NEED Kits are available. All schools that conducted NEED Projects, and teachers participating in our 2006 Energy Bus Tour will receive complimentary copies of the new kit. If you are interested in participating in NEED or energizing your classroom with fresh ideas and energy activities request a NEED Kit by sending a check made payable to the Tennessee Energy Education Network in the amount of \$5.00 and mailed to the following address:

Department of Economic and Community Development
Energy Division
312 8th Ave. North-10th Floor
Nashville, TN 37243-0405
Attn: Tennessee Energy Education Network

Free Student-Designed Bookmarks Available

Classroom sets of energy bookmarks are available while supplies last. These colorful bookmarks feature the winning entries from the 2005 TEEN Bookmark Contest.

Call the Energy Hotline to make your request, 800-342-1340.



Deadline for Bookmark, Placemats Coming Up!

There's still time to enter the 2006 TEEN Bookmark and Placemat Design Contests, but you need to hurry. The deadline is December 8, so get those entries mailed! To download complete contest rules and entry forms, visit the TEEN website at http://www.state.tn.us/ececd/energy_teen.htm Remember there is only one entry per grade level per school and all entries must be accompanied by an entry form.



Tennessee
Energy
Education Network
2006
Bookmark Design Contest
"Alternative Fuels"

Tennessee
Energy
Education Network
2006
Placemat Design Contest
"Energy: You Can't Live Without It"

Energy Efficiency Improves Air Quality

ENERGY ANGLES

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energy ^{UPDATE}

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November - December 2006

Report Says U.S. Air Quality Has Improved In Past Decade

U.S. residents can breathe a bit easier than they did a decade ago, as the number of days that air quality was deemed unhealthy has fallen, according to a report by the American Lung Association.

The report found real improvement in air quality over much of the United States, due in part to reduced emissions from power plants.

Researchers found there were under 8,500 days where the air was unhealthy to breathe.

Even so, over half the U.S. population live in the 369 counties that have unhealthy levels of smog or soot in the air, the report found.

*Deborah Zabarenko,
April 28, 2006
Reuters*

U.S. Farm Town Tries For All-Renewable Energy

The farming hamlet of Reynolds, Indiana is aiming to generate its own electricity and gas, using everything from municipal trash to farm waste, hog manure and even town sewage.

If the experiment works, Reynolds and its 500 residents will be America's first community to use renewable resources to meet the energy needs of all their homes and businesses.

Dubbed Biotown USA, the town hopes to break ground in November on a \$10 million "technology suite," a privately funded center that will house the core equipment needed to turn manure and other biomass material into energy. It should generate electricity for the town by July 2007.

If the project succeeds, Reynolds could be a prototype for reducing America's dependence on foreign oil.

*Ashley M. Heher,
Associated Press
July 10, 2006*

Squeezing Oil From Old Wells

Oil fuels the lives of most people around the world. Without it, the world would be a very different place. However, oil can be pumped out of the ground only in certain places and there's a limited supply. In the United States alone, about 380 billion barrels of oil lie buried underground in places that are hard to get to—trapped inside porous rocks, for example, or stuck to grains of sand.

Now, scientists have found an unusual way to squeeze additional crude oil out of wells that were thought to be tapped out. They're using microbes to help extract the trapped oil.

Adding microbes to oil wells could release up to 40% of trapped oil in the same way that laundry detergent lifts stains out of clothing.

*May 31, 2006,
Emily Sohn
Science News for Kids*

London Celebrates Environment Day With World's Longest Clothesline

Environmentalists hung 113,000 feet of laundry out to dry in Trafalgar Square in June as part of a multi-agency effort on U.N. World Environment Day to protest British reliance on energy-sapping dryers. The all-day demonstration used 4,920 items of washing and 24,600 clothespins.

The Environment Agency said that if each family in Britain hung up just one load of washing each week, that would save **\$166 million dollars** and prevent over 500,000 tons of carbon dioxide emissions per year.

One event organizer was quoted as saying "At the end of the day, it's my hope that Britain will be proud to have aired more dirty laundry in public than any other nation on the planet."

*June 06, 2006,
Associated Press*



Colombian Police Train Rats To Sniff Out Landmines

Her name is Lola and she's at the top of her class of risk-running rodents being trained to sniff out landmines in Colombia, home to the world's highest number of mine-related deaths and injuries last year. She has a 90 percent success rate in locating explosive material in her laboratory training maze.

Police animal trainers, tired of seeing their explosive--sniffing dogs blown up by stepping on mines, hope the white-furred, pink-eyed creature will lead her classmates through upcoming open field tests and then into the Andean country's live mine fields before the end of the year.

At about 7.8 ounces Lola is too light to detonate landmines that guerrillas set to protect crops used to make cocaine. It takes about 14 ounces of pressure to detonate a mine. Rats have more sensitive noses than dogs, which should allow them to better sniff out mines in difficult terrain. Plus, they cost less than dogs, eat less, are easier to transport and can wriggle into smaller spaces.

About 60 percent of Colombia's mine victims are members of state security forces. The remaining 40 percent are civilians, about half of them children who step on the devices while walking to school or playing in the countryside.

There are mine fields on the outskirts of most Colombian towns, littered with a total of more than 100,000 of the devices.

May 11, 2006

Hugh Bronstein

Reuters in Environmental News

Did You Know?

Polar bears and hippos have joined the ranks of species threatened with extinction.

May 02, 2006, Reuters

Extra Strings for New Sounds

You've heard of pianos, violins, and guitars. Now, make room for the tritare (rhymes with guitar). Canadian mathematicians have invented the new music-making device by tweaking the standard concept of a stringed instrument. Instead of having strings that stretch between two points, the tritare has strings that are attached to the instrument at more than two points. Picture, for example, a Y-shaped string, anchored at its three endpoints.

When played, the instrument produces an eerie sound that challenges the ears with complicated echoes and vibrations. The tritare looks like a guitar with two extra necks. One of the necks has thin crossbars, or frets, that mark places where pushing on strings creates desired pitches. The other two necks are unfretted.

Plucking, strumming, or bowing a normal guitar string creates mathematically related sounds called harmonic overtones. Playing the tritare generates harmonic overtones, but it also creates sounds that are nonharmonic. The researchers say that the tritare's sound is beautiful and has lots of potential for musical expression. Other researchers are more skeptical.

"To my ears [the tritare] just sounded like a badly out-of-tune instrument," says acoustics specialist Bernard Richardson of Cardiff University in Wales.

June 7, 2006,

Emily Sohn



New Interactive Web Site Is Totally Rad

From seeing a stadium laser light show to receiving an x-ray, radiation is part of our lives. That's why EPA has launched RadTown USA, a new web site that uses an animated town to provide basic information on radiation in the environment. RadTown USA is a virtual community showing the wide variety of radiation sources commonly encountered in everyday life. The RadTown site features houses, a school, stadium, construction site, flying plane, moving train and much more to highlight and explain the many common sources of radiation.

Discover RadTown USA at <http://www.epa.gov/radtown>

Roxanne Smith,

May 1, 2006

